INQUIRY AND ADVISORY COMMITTEE

IN THE MATTER OF: North East Link Project

Statement of Evidence of Christophe Frédéric Delaire

Prepared for: Carey Baptist Grammar School Ltd
Instructed by: Hunt & Hunt Lawyers

Date of last site inspection: 11 April 2019
Date of Statement of Evidence: 15 July 2019

Document reference: Ev 001 20190338
1.0 NAME AND ADDRESS
1.1 CHRISTOPHE FREDERIC DELAIRE
1.2 Co-CEO of Marshall Day Acoustics Pty Ltd (MDA)
1.3 6 Gipps Street, Collingwood Victoria 3066

2.0 AREA OF EXPERTISE
2.1 For over 16 years I have worked in the field of acoustics and noise control.
2.2 I am a member of the Australian Acoustical Society (MAAS)
2.3 My qualifications and experience are detailed in Appendix A.
2.4 I am sufficiently expert to make this statement because I have been involved in environmental noise impact assessments for major environmental projects such as roads, power stations, wind farms and industrial plants.

3.0 SCOPE
3.1 Major Transport Infrastructure Authority (North East Link Project) (NELP) is proposing the construction of a new freeway (the North East Link) connecting the M80 Ring Road and the Eastern Freeway.
3.2 Marshall Day Acoustics Pty Ltd (MDA) has been engaged by Carey Baptist Grammar School Ltd (Carey) to conduct a review of the environmental noise and vibration sections of the North East Link Environmental Effects Statement (EES)
3.3 The following sections of the North East Link EES, collectively referred to herein as the EES noise and vibration documents, were reviewed:
   • Chapter 8 Project description
   • Chapter 11 Surface noise and vibration
   • Technical Report C Surface noise and vibration and the associated appendices (referred to as the technical noise and vibration report).

The above documents are collectively referred to as the EES noise and vibration documents.
3.4 I prepared this statement of evidence with the assistance of the Marshall Day Acoustics’ staff members listed in Table 1.

Table 1: Assisting MDA staff members

<table>
<thead>
<tr>
<th>Staff member</th>
<th>Title</th>
<th>Tasks</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Justin Adcock</td>
<td>Associate</td>
<td>Review of the EES noise and vibration documents</td>
<td>B.Eng (Mech)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Review of evidence</td>
<td></td>
</tr>
</tbody>
</table>

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4.0 SUMMARY OF OPINIONS

4.1 I adopt the MDA Letter Lt001 20190338 North East Link EES - Environmental Noise & Vibration Review dated 25 May 2019, attached as Appendix B, as the basis for my expert witness statement and evidence.

4.2 A summary of my comments and recommendations are provided in the Recommendations section of the MDA Letter and reproduced below for reference.

Based on the considerations detailed in the preceding sections, we recommend the following modifications to the EPRs in order to ensure that construction and operational noise impacts to the Carey Sports Complex are addressed:

- Operational noise – EPR code NV1 (noise criteria):
  - The performance criteria defined for Category B buildings should also be specified for the Carey Sports Complex buildings used for education purposes, either through definition of these buildings as Category B for the purposes of the EPR, or by specifically listing the relevant buildings of the Carey Sports Complex.
  - The EPR should introduce a requirement for an operational noise assessment report to be prepared prior to commencement of development of the project. The report should document the predicted noise levels at noise sensitive building locations and noise sensitive outdoor areas for the final project design. The noise mitigation measures should also be documented in the report, including consideration of any noise-sensitive outdoor locations where the updated predicted noise levels are predicted to increase.

- Construction noise – EPR Code NV3 (performance requirements specified via NMLs)
  - The EPR should be modified to specify that the NMLs defined for active and passive recreation apply to sporting facilities and designated outdoor areas associated with educational facilities (such as the Carey Sports Complex), and that the more stringent NML defined for passive recreation is applied to any outdoor areas used for teaching purposes where disturbance of speech is a relevant consideration.

  - The EPR should be modified to require outdoor locations associated with educational facilities (such as the Carey Sports Complex) to be included in the noise sensitive locations addressed by the CNVMP.
  - Based on inclusion of outdoor areas associated with educational facilities in EPR code NV3, the CNVMP would be required to include details of predicted noise levels and mitigation measures to address construction noise at the Carey Sports Complex.
5.0 CONSULTATION WITH NELP

5.1 The MDA review noted that the technical noise and vibration report noise information did not provide a complete account of predicted noise levels at the Carey Sports Complex. The absence of this data also informed the recommended modifications to the EPRs.

5.2 At the Directions Hearing for the North East Link project, we understand that the Inquiry and Advisory Committee asked that Carey representatives approach the NELP to request additional data which was not provided in the technical noise and vibration report.

5.3 The request for further information issued to the NELP together with their comments are presented in Appendix B.

5.4 On Friday 12 July 2019, I met with the NELP noise consultant (David Lindsey and Gustaf Reutersward of SLR Consulting Australia Pty Ltd) and Emma Lichkus of GHD to address any residual queries. Comments from this meeting are also provided in Appendix C.

6.0 DECLARATION

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Inquiry and Advisory Committee.

Signed ........................................

Dated 15 July 2019
APPENDIX A  CURRICULUM VITAE – CHRISTOPHE FREDERIC DELAIRE

CHRISTOPHE FREDERIC DELAIRE
Co-CEO, Marshall Day Acoustics, Melbourne, Australia

Master’s Degree in Engineering (French equivalent), France 2001

Membership
Member of the Australian Acoustical Society, (MAAS)

Project Experience
Christophe Delaire graduated with a Masters Degree in Engineering (French equivalent) from Ecole Supérieure d’Ingénieurs de Poitiers (France) in 2002 and joined Marshall Day Acoustics the same year.

Christophe has acquired wide-ranging experience in environmental projects and residential developments. He has particularly developed his skill set in environmental acoustics and has been involved in the noise assessment of numerous wind farms since 2005, including most Victorian projects.

Christophe has given evidence at many hearings (VCAT and Panels Victoria) and is the author of several papers presented at International Wind Turbine Noise Conferences.

Employment
2017 - Present  Co-CEO, Marshall Day Acoustics, Melbourne
2002 – 2017  Associate, Marshall Day Acoustics, Melbourne
2001  Vacation employment, Marshall Day Acoustics, Melbourne
Attention: Andrew Gunter

Dear Andrew

PRIVATE & CONFIDENTIAL
NORTH EAST LINK EES - ENVIRONMENTAL NOISE & VIBRATION REVIEW

We have completed a review of the environmental noise and vibration sections of the North East Link Environmental Effects Statement (EES). This document summarises our review findings concerning the noise and vibration issues that are relevant to the Carey Baptist Grammar School’s Carey Sports Complex at Bulleen (referred to as the Carey Sports Complex herein).

The review has considered the noise and vibration issues relating to both the construction and operation of the North East Link project, primarily in relation to the surface works and development associated with the project.

The following sections of the North East Link EES were reviewed:

- Chapter 8 Project description
- Chapter 11 Surface noise and vibration
- Technical Report C Surface noise and vibration and the associated appendices (referred to as the technical noise and vibration report).

The above documents are collectively referred to as the EES noise and vibration documents.

In reviewing the EES noise and vibration documents, reference has been made to Carey Baptist Grammar School’s Master Plan – Bullen Campus, dated November 2015 produced by Hayball.

The review has focused on evaluating the suitability of the processes and assessment methodologies referenced in the EES noise and vibration documents. Measurements and sample verification calculations have not been undertaken as part of this review.
REVIEW FINDINGS OVERVIEW

Our review of the EES noise and vibration documents indicates that:

- The assessment relies on suitable and relevant policies and assessment standards
- The assessment is based on appropriate data sources
- The prediction and assessment standards are consistent with accepted methodologies used for new road projects in Victoria.

While the general processes and assessment methodologies are considered appropriate, the EES noise and vibration documents classify the Carey Sports Complex as an Outdoor Recreation and Public Open Space. This classification appears to be based on the extent of outdoor sports fields at the Carey Sports Complex, and the buildings on the site not being considered as noise sensitive buildings. The effect of this classification is that less stringent criteria have been referenced for the Carey Sports Complex than applies to other types of education facilities. It also means that, in some cases, noise and vibration information that is specific to the complex has not been presented (i.e. construction phase).

Notwithstanding this classification, the current predicted operational noise data provided in the technical noise and vibration report indicates that the project is expected to achieve the more stringent criterion that has been referenced for buildings associated with schools (Category B). Therefore, in terms of operational environmental noise effects, the results suggest that the selected classification is inconsequential to the findings for the Carey Sports Complex with respect to the currently predicted long term operational noise levels. However, the classification carries through into the proposed Environmental Performance Requirements (EPRs) for the project. This means that, while the current predictions indicate that operational noise associated with North East Link are expected to comply with the Category B criterion used for schools, the project would not be specifically required by the EPRs to achieve the criterion for the Carey Sports Complex.

Similar considerations apply to construction noise. However, in the absence of noise prediction data that is specific to the Carey Sports Complex, it is not possible to assess the need for, or extent of, dedicated measures to address construction noise for the Carey Sports Complex.

The following sections provide further contextual information and details concerning the review findings summarised above.

In relation to vibration, the EES technical noise and vibration documentation indicates that the risks of construction or operational vibration are low for the Carey Sports Complex buildings, with the works being separated from Carey building structure by distances that are greater than the cosmetic damage and human response safe working distances. The discussion in the following sections therefore focuses on the key consideration of environmental noise.
SITE CLASSIFICATION

Section 2.2 of the technical noise and vibration report summarises the relevant EES scoping requirements and reproduces the following requirements for characterising the existing environment:

*Identify residences (including sites that are the subject of current planning permit applications or planning scheme amendments), urban developments (where development proposals are identified in the planning scheme or form part of seriously entertained planning propose Note 1) and land uses (schools, hospitals, outdoor recreation sites, etcetera) that require a particular focus on protecting the beneficial uses of the air and noise environment relating to human health and wellbeing, local amenity and aesthetic enjoyment.*

Section 4.8.2 of the technical noise and vibration report details the project-specific noise objectives that were developed for the North East Link project, based on a range of relevant policy documents. In defining these objectives, the types of sites and land uses that are quantitatively assessed, and the way they are assessed, is stated. The following points are noted:

- **Construction phase:** noise management levels (NMLs) are documented for buildings, including schools and community uses. NMLs are not defined for outdoor areas and therefore NMLs are not defined for areas such as the ovals of the Carey Sports Complex. It is however noted that the NSW policy guidance that the NMLs were sourced from includes NMLs for active and passive recreation areas.

- **Operational phase:** criteria are defined for Category A and Category B buildings (discussed below). Criteria are not defined for sensitive uses/areas that are not buildings. The report makes reference to parklands to note that this type of area is not assessed against set quantitative objectives, but are considered by comparing the difference between traffic noise with and without the project.

The areas surrounding the proposed North East link are then grouped into precincts in the technical noise and vibration report, with the Carey Sports Complex being located in the area designated as Precinct 3.

In relation to Precinct 3, Section 6.4 of the technical noise and vibration report subsequently lists the sensitive receiver categories as follows:

- **Category A – Noise Sensitive Residential Buildings**
- **Category B – Noise Sensitive Community Buildings**
- **Outdoor Recreation and Public Open Spaces.**

The designations within section 6.4 of the technical noise and vibration report do not appear to differentiate between the construction and operational phases of the North East Link project. However, the Category A and Category B designations derive from VicRoads' *Traffic Noise Reduction Policy 2005* which sets criteria for operational noise associated with the project.

Within this section of the technical noise and vibration report, the Carey Sports Complex is categorised as an Outdoor Recreation and Public Open Space. The classification is appropriate for recreational uses of the outdoor areas of the Carey Sports Complex. However, educational uses of the grounds would be more sensitive to noise intrusion than outdoor recreation uses, due to potential interference with speech. It is also understood that some current and future buildings associated with the Carey Sports Complex may be used for school related activities and functions. These types of uses warrant consideration of the buildings as Category B – Noise Sensitive Community Buildings (Category B). This would also be consistent with the EES scoping requirement to identify ‘land uses ... that require a particular focus on protecting the beneficial uses of the air and noise environment relating to human health and wellbeing, local amenity and aesthetic enjoyment’.

Adoption of the Category B designation would translate to more stringent criteria being applied to construction and operational noise generated by the project at the Carey Sports Complex.
CONSTRUCTION NOISE

The construction noise assessment presented in the technical noise and vibration assessment references the applicable guidance of the Victorian EPA:

- EPA Publication 1254 *Noise Control Guidelines*
- EPA Publication 480 *Environmental Guidelines for Major Construction Sites.* 

The assessment also refers to government guidance from NSW to set NMLs for the day period which are used as thresholds for identifying where construction noise mitigation needs to be considered. Victorian policy and legislation do not define noise limits for construction during normal working hours. The adoption of the NSW NMLs in the assessment therefore represents a more stringent approach than outlined in Victorian policy.

Table 4-5 of the technical noise and vibration report sets out the construction noise management levels for non-residential land uses as detailed in the NSW government guidance, indicating external noise levels ranging from 60 – 65 dB $L_{Aeq}$ for outdoor recreation areas (according to the type of use) and internal noise level targets for buildings associated with education uses.

However, as noted in the preceding section of this letter, the NMLs listed for external areas have not been carried through into the project-specific noise objectives detailed in Section 4.8.2 of the noise and vibration technical report. Further, it is unclear from the information within the technical noise and vibration report whether these noise management levels are expected or likely to be exceeded at the Carey Sports Complex. For example, Figure H-4 of Appendix H of the technical noise and vibration report, reproduced in Appendix A of this letter, illustrates the highest predicted construction noise levels at buildings in the vicinity of the construction works that are nearest to the Carey Sports Complex. However, this data does not illustrate noise levels at the buildings on the Carey Sports Complex, or across the sport fields, for comparison with the NMLs.

Given the proximity of the works to the sports fields at the Carey Sports Complex, we expect that the NMLs would be exceeded on some occasions, indicating that measures for the control of construction noise would need to be considered on the basis of the NMLs set out in the guidance referenced in the assessment. As an indication of this, Appendix B reproduces sheet 22 of 42 of the EES map book to illustrate the proximity of construction areas to the Carey Sports Complex. The figure shows an indicative location of a potential construction compound near to the Carey Sports Complex. The nature and extent of noise generating activities within this compound are not defined. However, given the proximity of this indicative location to Carey Sports Complex, there is potential for elevated construction noise levels in some areas of the complex.

OPERATIONAL TRAFFIC NOISE

The technical noise and vibration report assesses operational traffic noise from the North East Link against, among other references, the applicable VicRoads criteria for sensitive buildings.

The VicRoads criteria are defined for the Category A and Category B building designations referred to earlier in this document. The VicRoads definition of Category B buildings comprises schools, kindergartens, libraries and other noise-sensitive community buildings. The criterion for Category B buildings is 63 dB $L_{A10(12hr)}$.

The VicRoads policy does not prescribe criteria for the Outdoor Recreation and Public Open Spaces designation that has been assigned to the Carey Sports Complex in the technical noise and vibration report. Referencing the operational traffic noise predictions detailed in Appendix J of the technical noise and vibration report, reproduced in Appendix C of this letter, indicates that buildings on the Carey Sports Complex are within the 48 – 51 dB $L_{A10(18hr)}$ predicted noise level band. This data is sufficient to conclude that the current predicted noise levels correspond to values well below the 63 dB $L_{A10(12hr)}$ criterion defined by VicRoads for Category B buildings (accounting for the difference in the time period of the predictions and the criterion i.e. 18 hours versus 12 hours).
Further, referencing the operational traffic noise changes detailed in Appendix L of the technical noise and vibration report, reproduced in Appendix D of this letter, provides information about the predicted future difference in noise levels with and without the project. These figures indicate that the buildings of the Carey Sports Complex are currently predicted to experience lower noise levels than would occur without the North East Link project.

However, while the current predicted noise levels at the Carey Sports Complex Buildings are below the Category B operational criterion, and indicate a potential reduction in future noise levels (relative to project future noise levels without the project), these predictions are based on a reference design and associated noise mitigation measures which are not specifically configured to achieve a particular outcome or criterion for the Carey Sports Complex. Operational traffic noise levels at the Carey Sports Complex will therefore vary according to the final design configuration of the North East Link project and, based on the current form of EPRs, would not be required to adhere to a specific noise outcome for the Carey Sports Complex. Noise levels would instead only be indirectly limited by any measures that would be required to achieve the EPRs at other types of noise sensitive locations where the proposed EPRs establish noise limits.

Further, the above primarily relates to building structures located at the Carey Sports Complex. The technical noise and vibration report does not present an assessment of educational uses of the outdoor areas of the complex (or outdoor areas associated with other types of education facilities). This appears to be based on the VicRoads policy referenced in the assessment which only defines criteria for building locations. However, the EES scoping requirements refer to a broader range of sensitive locations and is not restricted to building locations. Also, the VicRoads policy referenced in the assessment does not preclude consideration of other areas. Accordingly, while the types of prescriptive compliance limits specified for building locations may not be appropriate for outdoor areas, operational noise at these locations should still be considered as part of the development of the project.

**OPERATIONAL ANCILLARY INFRASTRUCTURE NOISE**

The key ancillary infrastructure with respect to environmental noise are the tunnel ventilation systems.

The review findings with respect to the operational noise of ancillary infrastructure are similar to those of operational traffic noise. Specifically, while noise limits have not been nominated for the buildings at the Carey Sports Complex, the predicted noise levels presented in the technical noise and vibration report indicate relatively low noise levels at the Carey Sports Complex buildings (for reference, the relevant predicted noise level data from the technical noise and vibration report is reproduced in Appendix E).

Again, noise levels are indirectly limited by the measures that would be required to achieve the EPRs and legislative requirements which apply at other types of noise sensitive locations.

**CONCLUSIONS**

Our review of the EES noise and vibration documents that are relevant to the Carey Sports Complex indicates that reasonable and appropriate assessment methodologies have been adopted in the study.

The technical noise and vibration report indicates that the North East Link project is currently predicted to result in noise and vibration levels that are within criteria applied to educational facilities. However, the assessments are based on a reference design which will be subject to change, and the proposed EPRs would not require the project to be designed and constructed to meet specific noise and vibration requirements at the Carey Sports Complex. Noise and vibration would therefore only be indirectly limited by the controls which primarily apply to other sensitive use classifications in the vicinity of the proposed North East Link.

Based on the data presented in the technical noise and vibration report, introduction of noise and vibration requirements into the EPRs to address the Carey Sports Complex can be practically accommodated, and would ensure that amenity considerations associated with the Carey Sports Complex are accounted for as part of subsequent design and planning stages for the North East Link project.
RECOMMENDATIONS

Based on the considerations detailed in the preceding sections, we recommend the following modifications to the EPRs in order to ensure that construction and operational noise impacts to the Carey Sports Complex are addressed:

• Operational noise – EPR code NV1 (noise criteria):
  – The performance criteria defined for Category B buildings should also be specified for the Carey Sports Complex buildings used for education purposes, either through definition of these buildings as Category B for the purposes of the EPR, or by specifically listing the relevant buildings of the Carey Sports Complex.
  – The EPR should introduce a requirement for an operational noise assessment report to be prepared prior to commencement of development of the project. The report should document the predicted noise levels at noise sensitive building locations and noise sensitive outdoor areas for the final project design. The noise mitigation measures should also be documented in the report, including consideration of any noise-sensitive outdoor locations where the updated predicted noise levels are predicted to increase.

• Construction noise – EPR Code NV3 (performance requirements specified via NMLs)
  – The EPR should be modified to specify that the NMLs defined for active and passive recreation apply to sporting facilities and designated outdoor areas associated with educational facilities (such as the Carey Sports Complex), and that the more stringent NML defined for passive recreation is applied to any outdoor areas used for teaching purposes where disturbance of speech is a relevant consideration.

• Construction noise – EPR Code NV4 (Construction Noise & Vibration Management Plans, CNVMPs):
  – The EPR should be modified to require outdoor locations associated with educational facilities (such as the Carey Sports Complex) to be included in the noise sensitive locations addressed by the CNVMP.
  – Based on inclusion of outdoor areas associated with educations facilities in EPR code NV3, the CNVMP would be required to include details of predicted noise levels and mitigation measures to address construction noise at the Carey Sports Complex.

We trust the above and attached information is suitable for your immediate purposes. Please do not hesitate to contact us if you have any questions or require clarification.

Yours faithfully

MARSHALL DAY ACOUSTICS PTY LTD

Christophe Delaire
Co-CEO
APPENDIX A  PREDICTED CONSTRUCTION NOISE

REPRODUCED FROM TECHNICAL NOISE & VIBRATION REPORT APPENDIX H

FIGURE H4

Legend

Predicted Highest Construction Noise Level

- Other Sensitive Buildings
- Construction Activity

SLR

REDUCED SCALE

306.8 m

0 - 40
41 - 60
61 - 80
81 - 85
86 - 90
91 - 75
76 - 80
81 - 85
86 - 90
91 - 95

North East Link Project

Lt 001 20190338 - Carey Baptist Grammar School - North East Link EES - Environmental Noise Review
APPENDIX B  NORTH EAST LINK PROJECT – HORIZONTAL PLAN

REPRODUCED FROM THE EES MAP BOOK (SHEET 22 OF 42)
APPENDIX C  PREDICTED OPERATIONAL TRAFFIC NOISE 2036

REPRODUCED FROM TECHNICAL NOISE & VIBRATION REPORT APPENDIX J
APPENDIX D  PREDICTED 2036 OPERATIONAL TRAFFIC NOISE CHANGE WITH & WITHOUT PROJECT
REPRODUCED FROM TECHNICAL NOISE & VIBRATION REPORT APPENDIX L
APPENDIX E  PREDICTED OPERATIONAL NOISE CONTOURS FOR THE SOUTHERN PORTAL FAN VENTILATION DISCHARGE

REPRODUCED FROM TECHNICAL NOISE & VIBRATION REPORT SECTION 10.5.4.1

Figure 10-10  Noise contours from fan ventilation discharge at southern portal
## APPENDIX C  REQUEST FOR FURTHER INFORMATION TO NELP

<table>
<thead>
<tr>
<th>MDA Request</th>
<th>NELP Response</th>
<th>Further MDA comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction noise</strong></td>
<td><strong>Buildings along the project corridor were categorised based on information in other EES specialist studies and information available in the public domain. In accordance with the VicRoads assessment guidelines these categories were:</strong></td>
<td><strong>The scoping requirements for the project, reproduced below, do not restrict the study to receivers defined by VicRoads policy – as indicated in the MDA Letter:</strong></td>
</tr>
<tr>
<td></td>
<td><em>Category A - Dwellings, aged persons homes, hospitals, motels, caravan parks and other buildings with residential uses</em></td>
<td><em>Identify residences (including sites that are the subject of current planning permit applications or planning scheme amendments), urban developments (where development proposals are identified in the planning scheme or form part of seriously entertained planning propose Note 1) and land uses (schools, hospitals, outdoor recreation sites, etcetera) that require a particular focus on protecting the beneficial uses of the air and noise environment relating to human health and wellbeing, local amenity and aesthetic enjoyment.</em></td>
</tr>
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<td></td>
<td><em>Category B — Schools, kindergartens, libraries, places of worship and other noise sensitive community uses</em></td>
<td><strong>SLR acknowledged in the 12 July 2019 meeting that Figure H4 of Technical report C - Surface noise and vibration did not provide predicted construction noise levels within the Carey Sports Complex.</strong></td>
</tr>
<tr>
<td></td>
<td><em>Non-assessable buildings - these include industrial, commercial, sporting facilities, clubs.</em></td>
<td><strong>At that meeting, MDA requested that tabulated predictions be provided for representative points for each oval together with facade levels at buildings within the Carey sports Complex.</strong></td>
</tr>
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<td></td>
<td><strong>Carey Sports Complex was identified as an outdoor recreation and public open space and falls within the ‘non-assessable buildings’ category under the VicRoads assessment guidelines. While it was acknowledged that the VicRoads guidelines apply specifically to operational noise, these guidelines were used for the purposes of categorising buildings for both construction and operation to provide a consistent approach.</strong></td>
<td><strong>Refer comments above.</strong></td>
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<tr>
<td></td>
<td><strong>Predictions of worst-case construction noise levels in the vicinity of Carey Sports Complex can be found in Appendix H, Figure H4 of Technical report C - Surface noise and vibration.</strong></td>
<td><strong>Refer comments above.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Predicted construction noise levels across outdoor recreation, amenity and education areas at the Carey Sports Complex for the periods when construction noise levels are expected to be highest.</strong></td>
<td><strong>Refer response above.</strong></td>
</tr>
<tr>
<td>MDA Request</td>
<td>NELP Response</td>
<td>Further MDA comments</td>
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<tr>
<td>The predicted construction noise information is requested to be provided in a format to enable comparison with the Noise Management Level (NMLs) detailed in the NSW policy guidance that has been adopted in the technical noise and vibration report for other types of noise sensitive receiver locations</td>
<td>Predictions of worst-case construction noise levels in the vicinity of Carey Sports Complex can be found in Appendix H, Figure H4 of Technical report C - Surface noise and vibration. If Carey would like to discuss the assessment and model predictions at specific locations, we reiterate our invitation to meet with our expert.</td>
<td>Refer comments above.</td>
</tr>
<tr>
<td>Information about the duration of the periods that the prediction construction noise levels are expected to be at or above the NMLs at noise sensitive building locations and outdoor areas</td>
<td>Section 8.7.3 in Chapter 8 of the EES provides an indicative construction schedule for the project. Further detail on the construction phasing and timing would be determined by the project contractor. The contractor would be required to comply with EPR NV3 which specifies the noise management levels during construction.</td>
<td>Information specific to the duration of elevated noise levels at Carey was requested – this has not been provided. The response appears to suggest that noise levels at the Carey complex would need to be considered in assessing compliance with NV3. However, this is not explicit, and it is unclear how buildings and outdoor areas would be categorised for the purpose of assessment against the NMLs. For example, would any of the building sites be classified as educational buildings, and would outdoor areas be assessed against the more stringent NML referred to for outdoor areas (i.e. in recognition of potential educational uses of the outdoor areas)? Refer comments above.</td>
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<tr>
<td>Information about how construction noise at noise sensitive building and outdoor areas would be considered and addressed during the development of the North East Link project.</td>
<td>This would be considered and developed by the contractor and approved by the Independent Environmental Auditor in accordance with EPR NV3 and NV4.</td>
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</table>
**Operational noise**

An assessment of the impact of road traffic noise changes on educational uses of the outdoor areas of the Carey Sports Complex

The need for mitigation is based on VicRoads Noise Reduction Policy (2005).

Whilst the noise limit is applied and measured externally, it is intended to ensure a certain level of internal acoustic amenity for noise sensitive uses, e.g. residential usage (Category A), teaching & learning spaces (Category B). In contrast to some other state jurisdictions, the VicRoads TNRP does not apply to outdoor passive or active recreation spaces. Furthermore, VicRoads TNRP does not apply to commercial properties.

The buildings on the Carey Sports Centre complex are to facilitate sporting pursuits (e.g. indoor pool, gymnasium) or to spectate sports. Whilst it could be argued that classes of children doing sports forms part of the curriculum and thus forms part of teaching and learning, hence Category B might be applicable, it is observed that these types of facilities when being used are inherently quite noisy (e.g. gyms with ball sports or indoor swimming pools), they are not typical of the areas designed for quiet concentration (e.g. library). On this basis, the buildings at the Carey Sports Complex have not been classified as Category B.

It is worth noting that the predicted traffic noise level at the facility as a result of the project in the year 2036 (with project) is expected to be below 50 dBA L10(18 hour), which is significantly below the VicRoads criteria.

It is noted that the noise modelling undertaken for the project did not take into account flood barriers, which may also provide a benefit in the way of noise reduction.

The request was specific to outdoor areas. As per the response relating to construction noise, the scoping requirements does not preclude consideration of receivers other than those defined by VicRoads policy.
<table>
<thead>
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<tr>
<td>Information about how potential increases in road traffic noise levels across outdoor areas of the Carey Sports Complex would be considered and addressed during the design and development of the North East Link project</td>
<td>Appendix L provides the predicted change in traffic noise levels with/without the project at 2036, specifically Map L4.</td>
<td>As per comments in the MDA Letter, the predictions are for a reference design.</td>
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<tr>
<td>Information about how operational noise from ancillary infrastructure at the Carey Sports Complex would be considered and addressed during the design and development of the North East Link project. It is noted that the current predicted ancillary infrastructure noise levels are low. The requested information therefore primarily relates to the processes that would be used during the design and development of the North East Link project to identify and address a potential noise impact at the Carey Sports Complex as a result of a significant change to the design and specification of ancillary infrastructure</td>
<td>SEPP N1 requirements dictate the degree of mitigation (if any) to the nearest residences, but there are no specific requirements for noise from ancillary noise to the active sporting fields. Notwithstanding the above, the Carey Sports Complex will benefit from the design requirements applicable to the nearest residents.</td>
<td>The NELP response confirms that there is no specific control intended to be applied to noise at Carey as a result of services plant associated with the project.</td>
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</table>